

**Notice of Allowability**

Application No.

09/683,621

Examiner

Seyed Azarian

Applicant(s)

ALYASSIN, ABDALMAJEID MUSA

Art Unit

2624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to fax inquiry filed June 27, 2006.
2. ☒ The allowed claim(s) is/are 1-5, 7-8, 10-14, 17, and 19, now renumbered as 1-14.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 2/13/2002
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

JINGGE WU  
PRIMARY EXAMINER

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Applicants Attorney (Mr. Patrick S. Yuder, Reg No. 37,479), on June 27, 2006, without traverse.

**The application has amended as follows:**

**In the claims.**

3. Claim 1. (Currently amended) An automatic method for segmenting magnetic resonance (MR) images of an anatomical body of interest comprising:

classifying a plurality of selected structures within the body of interest based on a plurality of image processing computations relating respective T2 relaxation times corresponding to each of the structures;

segmenting the MR images for each of the structures substantially concurrently based on the plurality of image computations; and

wherein the plurality of image processing computations comprises a scatter plot of voxel values of the MR images, at least one radial histogram, and a plurality of image processing filters.

Cancel claim 6.

Claim 8. (Currently amended) An automatic method for segmenting magnetic Resonance (MR) images of a brain comprising:

Art Unit: 2624

acquiring the MR images by a dual echo pulse sequence to generate a first echo image data set and a second echo image data set;

computing a plurality of image processing computations relating respective T2 relaxation times corresponding to each of a plurality of selected structures within the brain;

segmenting the MR images for each of the structures substantially concurrently based on the plurality of image computations; and

wherein the dual echo pulse sequence comprises a first echo being a proton weighted density echo and a second echo being a T2 weighted echo.

Cancel claim 9.

Claim 12. (Currently amended) A system for automatically segmenting magnetic resonance (MR) images of an anatomical body of interest comprising:

a processor coupled to an MR image acquisition device, the processor being adapted to perform concurrent segmentation computations for a plurality of selected structures within the anatomical body of interest;

an interface unit coupled to the processor adapted to present information relating to the segmented computations corresponding to the plurality of selected structures;

wherein the MR images are acquired by a dual echo pulse sequence that comprises a first echo being a proton weighted density echo and a second echo being a T2 weighted echo.

Cancel claims 15 and 16.

Claim 17. (Currently amended) A method for filtering dual echo images acquired by

magnetic resonance (MR) imaging comprising:

selecting a desired echo;

implementing a maximum intensity projection (MIP) on the selected echo;

identifying a spatial location of the implemented MIP wherein the spatial location

is then used to extract values from subsequent echoes; and

wherein the dual echo images include a proton density weighted (PDW) image and a T2 weighed (T2W) image.

Cancel claim 18.

### **REASONS FOR ALLOWANCE**

4. The following is an examiner's statement of reasons for allowance.

Based on telephone interview and fax inquiry, filed 6/27/2006, with respect to cancellation of claims 6, 9, 15, 16 and 18, and amended claim 1, 8, 12 and 17, have been fully considered and are persuasive and upon further consideration the 103(a) art rejection of claims 1-5, 7-8, 10-14, 17 and 19, has been withdrawn.

5. Claims 1-5, 7-8, 10-14, 17 and 19 now renumbered as 1-14 are allowed.

Based on applicant's amendment, claim 1, the closest prior art of record (Gosche and Teboul) references do not disclose or suggest, among other things, "classifying a plurality of selected structures within the body of interest based on a plurality of image processing computations relating respective T2 relaxation times corresponding to each of the structures, segmenting the MR images for each of the structures substantially concurrently based on the

Art Unit: 2624

plurality of image computations, and the plurality of image processing computations comprises a scatter plot of voxel values of the MR images, at least one radial histogram, and a plurality of image processing filters. Additionally with respect to clime 8, 12 and 17 the closest prior art of record (Gosche and Teboul) references do not disclose or suggest, among other things” computing a plurality of image processing computations relating respective T2 relaxation times corresponding to each of a plurality of selected structures within the brain, segmenting the MR images for each of the structures substantially concurrently based on the plurality of image computations, and wherein the dual echo pulse sequence comprises a first echo being a proton weighted density echo and a second echo being a T2 weighted echo.

These key features in combination with the other features of the claimed invention are neither taught nor suggested by (Gosche and Teboul) prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Contact Information**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu, can be reached at (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Seyed Azarian*  
*Patent Examiner*  
*Group Art Unit 2624*  
*June 27, 2006*

JINGGE WU  
PRIMARY EXAMINER

